News & Tips on Microscopy

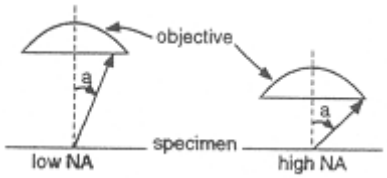
THE ZEISS CORNER

NUMBER 5

FLUORESCENCE NO. 2: THE OPTICS

1. Use the highest numerical aperture (NA) and lowest magnification (M).

Intensity (I) of the image is related to NA and M, $I = NA^4 / M^2$ Therefore use an objective with the lowest M and highest NA such as the Zeiss PlanNeofluar 40X/1.3 oil objective. NOTE: higher NA will mean a shorter working distance.



2. Use oil immersion objectives.

Oil objectives make use of physics to capture many of the rays which would usually escape collection. **Caution:** make *sure* to use a non-fluorescing immersion oil.

3. Use objectives with as few internal elements as possible.

The greater the correction in an objective the more internal lenses it must have. Each new lens gobbles up light. The best choice: Zeiss high quality "neofluar" objectives.

4.Remember optics have spectral responses too.

Interested in working just outside the typical 380-700 nm spectral range? Check with your Zeiss rep for the response of your optics. Some transmit down into the near ultraviolet as low as 340 nm. For deeper UV exchange necessary components for quartz.

Contact us and we'll send you a helpful chart of recommended filter sets for common fluorochromes. And for all your needs in fluorescence microscopy choose the leader -- Zeiss

SEE WHAT YOU'RE MISSING

Microscope Division
Carl Zeiss, Inc.
One Zeiss Drive
Thornwood, NY 10594
Call: 800-233-2343
Fax: 914-681-7446

www.zeiss.com/micro

Email: micro@zeiss.com

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